



Alexco Keno Hill Mining Corp
1150-200 Granville Street
Vancouver BC V6C 1S4

June 4, 2010

Yukon Water Board
Suite 106, 419 Range Road
Whitehorse, Yukon Y1A 3V1

Attention: Ms. Joelle Janes, Licencing Officer

Dear Ms. Janes:

Re: Bellekeno Mine Water Licence Application QZ09-092, Supplemental Information

Following our earlier commitments to provide an analysis of 2008-2009 raw streamflow data (see Exhibit 1.10 response to question 37, Exhibit 1.11 Section 3), please see attached Memorandum CCL-UKHM-3 recently completed by Clearwater Consultants Ltd for this analysis. This report presents a summary of the streamflow data processing carried out for KV-7, KV-9 and KV – 41 for data collected in 2008 and 2009, describes methodology used to process the data, and compares results to the earlier 1996 Site Characterization Report study.

As excerpted from section 3, this report confirms our previous assertion as set out in Exhibit 1.13 as follows:

“The addition of streamflow data collected in 2008 and 2009 has not, therefore, changed one of the major conclusions presented in the 2008 memorandum: the 1996 Hydrology Study provides a good basis for estimating long-term average flow and runoff at ungauged locations around the Bellekeno Mine site.”

Should you have any questions, please contact our office at (604)-663-4888.

Sincerely,
Alexco Keno Hill Mining Corp



Robert L. McIntyre, R.E.T.
Vice President, Business Development
Alexco Keno Hill Mining Corp

cc. external D. Buyck, FNNND, R. Holmes, YG EM&R, R. Lamb, YG Environment, C.
Scheu, Yukon Water Board, S. Arell, Environment Canada
cc. internal C.Nauman, B.Thrall, T.Hall, D.Whittle, Alexco Resource Corp.
E. Allen, T. Lunday, Access Consulting Group

Attachments:

A. Memorandum CCL-UKHM-3

Memorandum CCL-UKHM-3

Date: June 4, 2010

Our File: 028.02

To: Alexco Resource Corp – Rob McIntyre

From: Clearwater Consultants Ltd. - Peter S. McCreath (pmccreath@shaw.ca)

Subject: United Keno Hill Mines – Hydrological Update and Assessment

1. Introduction

This Memorandum CCL-UKHM-3 prepared by Clearwater Consultants Ltd. presents a summary of the streamflow data processing carried out for three stations at and around the Bellekeno Mine property for data collected in 2008 and 2009. The processed data are compared with concurrent regional streamflow data. Clearwater Consultants Ltd. previous memorandum CCL-UKHM-1 dated May 16, 2008 presented processed data for the following stations:

- Christal Creek at KV7 and Flat Creek at KV9, 2003 to 2007 data
- Lightning Creek at KV41, 2004 to 2007 data

That memorandum also contained descriptions of the methodology used to process the streamflow data, details of relevant minesite area catchments, and a comparison of results to the earlier 1996 hydrology study.

2. Streamflow Data Processing

2.1. Christal Creek at KV7

The processed streamflow data for Station KV7 on Christal Creek for 2008 and 2009 are presented in Figure 1. The figure covers two years and provides a comparison of the pressure transducer readings and the staff gauge readings as well as presenting the continuous records of discharge computed from the pressure transducer readings and the derived rating curve. Figure 2 compares the Christal Creek flows to concurrent flows reported for the McQuesten River WSC station 09DD004. Although the McQuesten River 2009 flows are described as preliminary unapproved data, the Figure shows a good similarity in the flow pattern between the two stations. Figure 3 shows correlations between direct flow measurements at KV7 and concurrent flows reported at the WSC stations Beaver River, McQuesten River, and Indian River.

Table 1 presents the patched monthly average flow record for Station KV7 for the period 2003 to 2009. Averages were computed for each calendar month to provide an estimate of the average seasonal runoff distribution at this station. These average monthly flows were in turn averaged to derive an estimated value for the mean annual runoff (MAR) of Christal Creek at KV7. The resulting MAR was 0.294 m³/s, or 213 mm equivalent depth of runoff distributed uniformly over the contributing catchment area of 43.5 km².

Based on the correlation with the WSC stations (Figure 3), the MAR for KV7 may be from 0.224 to 0.278 m³/s or 163 to 202 mm, slightly lower than the estimate made using only the KV7 processed streamflow data from 2003 to 2009. Overall, although slightly lower, both sets of results described above compare favorably with the previous estimates of MAR made in 2008 (0.304 m³/s, 221 mm).

2.2. Flat Creek at KV9

Due to missing original data spreadsheets, available Flat Creek at KV9 data prior to 2008 was limited to the direct discharge measurements carried out at the station. As described in the May 2008 memorandum, estimates of MAR for Flat Creek were prepared at that time based on correlation analyses of these direct flow measurements with concurrent flows at regional WSC streamflow stations. The correlations made use of all available direct discharge measurements at KV9 extending back to 1994.

The 2008 and 2009 processed streamflow data for station KV9 are presented in Figure 4. Figure 5 compares the Flat Creek flows to concurrent flows reported for the McQuesten River WSC station. Table 2 summarizes the processed monthly flows for 2008 and 2009. The estimated MAR for Flat Creek at KV9 is $0.365 \text{ m}^3/\text{s}$ or 204 mm based on the 56.5 km^2 drainage area controlled by Station KV9.

An independent estimate of MAR for KV9 was made by correlating direct flow measurements at KV9 with concurrent regional WSC flow data as shown on Figure 6. The resulting range of MAR estimate was from 0.254 to $0.313 \text{ m}^3/\text{s}$ (142 to 175 mm), which range is slightly lower than the estimate made using only the KV9 processed 2008 and 2009 streamflow data. Overall these results compare favorably with the previous estimates made in 2008 (0.304 to $0.352 \text{ m}^3/\text{s}$, 170 to 197 mm).

2.3. Lightning Creek at KV41

The 2008 and 2009 streamflow record for Station KV41 is presented in Figure 7. Figure 8 compares the Lightning Creek flows to concurrent flows reported for the McQuesten River WSC station. Table 3 presents the estimated average monthly discharge record for the period 2004 to 2009. As for Station KV7, averages of the monthly values were computed for each calendar month. These averages were in turn averaged to estimate the MAR for Lightning Creek at KV41. The resulting MAR was $0.660 \text{ m}^3/\text{s}$, or 352 mm equivalent depth of runoff water spread over the 59.1 km^2 catchment area.

By correlating direct flow measurements at KV41 with concurrent regional flow data as shown on Figure 9, the estimated range of MAR for KV41 was from 0.658 to $0.774 \text{ m}^3/\text{s}$, or 351 to 413 mm. Results from both of these methods compare favorably with the previous estimates made in 2008 ($0.645 \text{ m}^3/\text{s}$, 344 mm).

3. Comparison with Regional Data and 1996 Hydrology Study

The 1996 Hydrology Study provided a technique for estimating the average runoff hydrograph at ungauged locations in and around the UKHM property. The technique was described in memorandum CCL-UKHM-1 to which the reader is referred.

Figure 10 is a reproduction of Figure 3-8 from the 1996 hydrology study and shows mean annual runoff depth versus catchment median elevation. The following data were originally used to develop the relationship between MAR and elevation:

- Pairs of MAR and elevation data provided by the regional streamflow gauging stations operated by the WSC and DIAND.
- Data based on climatic water balances calculated for two climate stations at UKHM, namely Elsa and Keno Hill. Point estimates of runoff were made for these two stations by subtracting estimated mean annual evapotranspiration from the observed mean annual precipitation.

A line was drawn on the figure that was believed to represent conditions at UKHM. The adopted line runs through the two point runoff estimates provided by the climate stations and the MAR/elevation

pairing provided by the WSC gauging station on McQuesten River. Much of the mine development drains to this river.

The three Bellekeno area streamflow stations represent runoff from catchments with a wide range of elevation characteristics: KV7 (970 m), KV9 (830 m), and KV41 (1400 m). The estimated range of MAR values for these three stations with their corresponding median elevations, are also plotted on Figure 10. The mine site data plot close to the original relationship. This indicates that the original relationship developed in 1996 remains reasonable and can continue to be used to estimate MAR at ungauged locations around the mine site. The addition of streamflow data collected in 2008 and 2009 has not, therefore, changed one of the major conclusions presented in the 2008 memorandum: the 1996 Hydrology Study provide a good basis for estimating long-term average flow and runoff at ungauged locations around the Bellekeno Mine site.

4. Conclusions

This memorandum presents the results of streamflow data processing for three stations around the Bellekeno Mine site area for 2008 and 2009. The following conclusions are made:

- Christal Creek at KV7 has a catchment area of 43.5 km² and over the 2003 to 2009 period the estimated mean annual runoff (MAR) was 0.293 m³/s corresponding to an average runoff depth of 213 mm from the catchment area
- Flat Creek at KV9 has a catchment area of 56.5 km². Based on correlations with regional WSC streamflow data and the 2008/2009 datalogger data the estimated mean annual runoff (MAR) was 0.365 m³/s corresponding to an average runoff depth of 204 mm from the catchment area
- Lightning Creek at KV41 has a catchment area of 59.1 km² and over the 2004 to 2009 period the estimated mean annual runoff (MAR) was 0.660 m³/s corresponding to an average runoff depth of 352 mm from the catchment area
- The mean annual runoff depths reported above were supported by independent estimates of MAR made using correlation of direct flow measurements with concurrent regional flows reported for WSC stations.
- The MAR results above plotted on Figure 10 compare favorably with results previously presented in Clearwater Consultants Ltd. Memorandum CCL-UKHM-1 (May 16, 2008).
- Based on comparisons with the latest site flow data, Figure 10 provides a reasonable relationship between median catchment elevation and mean annual runoff and could be used to estimate MAR for other ungauged project area catchments.

CLEARWATER CONSULTANTS LTD.

Peter S. McCreath P.Eng. (Yukon)

Patrick J. Bryan P.Eng. (BC)

APPENDIX 1

Bellekeno Mine Project Streamflow Data - TABLES

Table 1 – Monthly Average Discharge Record – Christal Creek at KV7

Table 2 – Monthly Average Discharge Record – Flat Creek at KV9

Table 3 – Monthly Average Discharge Record – Lightning Creek at KV41

Table 1 - Average Monthly Discharge Record for Christal Creek at KV7 (m³/s)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003								0.420	0.510			
2004			0.150	0.166	1.153	0.314	0.119	0.112	0.163	0.135	0.103	0.101
2005		0.122	0.112	0.391	1.540	0.264	0.294	0.398	0.335	0.259	0.189	0.150
2006	0.166	0.138	0.120	0.124	1.089	0.519	0.397	0.278	0.415	0.368	0.203	0.142
2007	0.151	0.120			0.757	0.327	0.540	0.218	0.335	0.154		
2008								0.430	0.333	0.352		0.134
2009	0.079	0.068	0.048	0.074	1.123	0.338	0.102	0.183	0.368			
Average	0.132	0.112	0.107	0.189	1.132	0.352	0.290	0.291	0.351	0.254	0.165	0.132

Average Annual Flow = 0.294 m³/s

Catchment Area = 43.5 km²

MAR = 213.3 mm

Table 2 - Average Monthly Discharge Record for Flat Creek at KV9

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2004								0.116	0.099	0.110	0.046	0.034
2005	0.030	0.028	0.126	0.273	2.077	1.017	0.282	0.340	0.330	0.280		
2008								0.545	0.375	0.448	0.129	0.090
2009	0.053	0.029	0.020	0.010	2.155	0.510	0.088	0.092	0.364			
Average	0.042	0.029	0.073	0.142	2.116	0.764	0.185	0.273	0.292	0.279	0.088	0.062

Average Annual Flow = 0.365 m³/s

Catchment Area = 56.5 km²

MAR = 203.8 mm

Table 3 - Average Monthly Discharge Record for Lightning Creek at KV41

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2004								0.433	0.315	0.240	0.153	0.125
2005	0.098	0.067	0.056	0.130	1.802	1.418	0.989	1.111	0.958	0.637	0.452	0.299
2006	0.219	0.192	0.194	0.272	0.793	1.994	1.326	0.921	1.083	0.889	0.554	0.447
2007					1.231	1.926	1.193					
2008								1.136	0.770	1.030		
2009		0.110	0.128	0.069	1.595	1.628						
Average	0.159	0.123	0.126	0.157	1.355	1.741	1.169	0.900	0.782	0.699	0.386	0.290

Average Annual Flow = 0.660 m³/s

Catchment Area = 59.1 km²

MAR = 352.5 mm

APPENDIX 2

Bellekeno Mine Project Streamflow Data - FIGURES

- Figure 1 – 2008 & 2009 Stage and Flow Records for Station KV7
- Figure 2 – Comparison of Christal Creek at KV7 v. McQuesten River
- Figure 3 – Estimation of MAR of Christal Creek at KV7 from WSC Data
- Figure 4 – 2008 & 2009 Stage and Flow Records for Station KV9
- Figure 5 – Comparison of Flat Creek at KV9 v. McQuesten River
- Figure 6 – Estimation of MAR of Flat Creek at KV9 from WSC Data
- Figure 7 - 2008 & 2009 Stage and Flow Records for Station KV41
- Figure 8 – Comparison of Lightning Creek at KV41 v. McQuesten River
- Figure 9 – Estimation of MAR of Lightning Creek at KV41 from WSC Data
- Figure 10 – Validation of Regional Relationship between MAR and Elevation

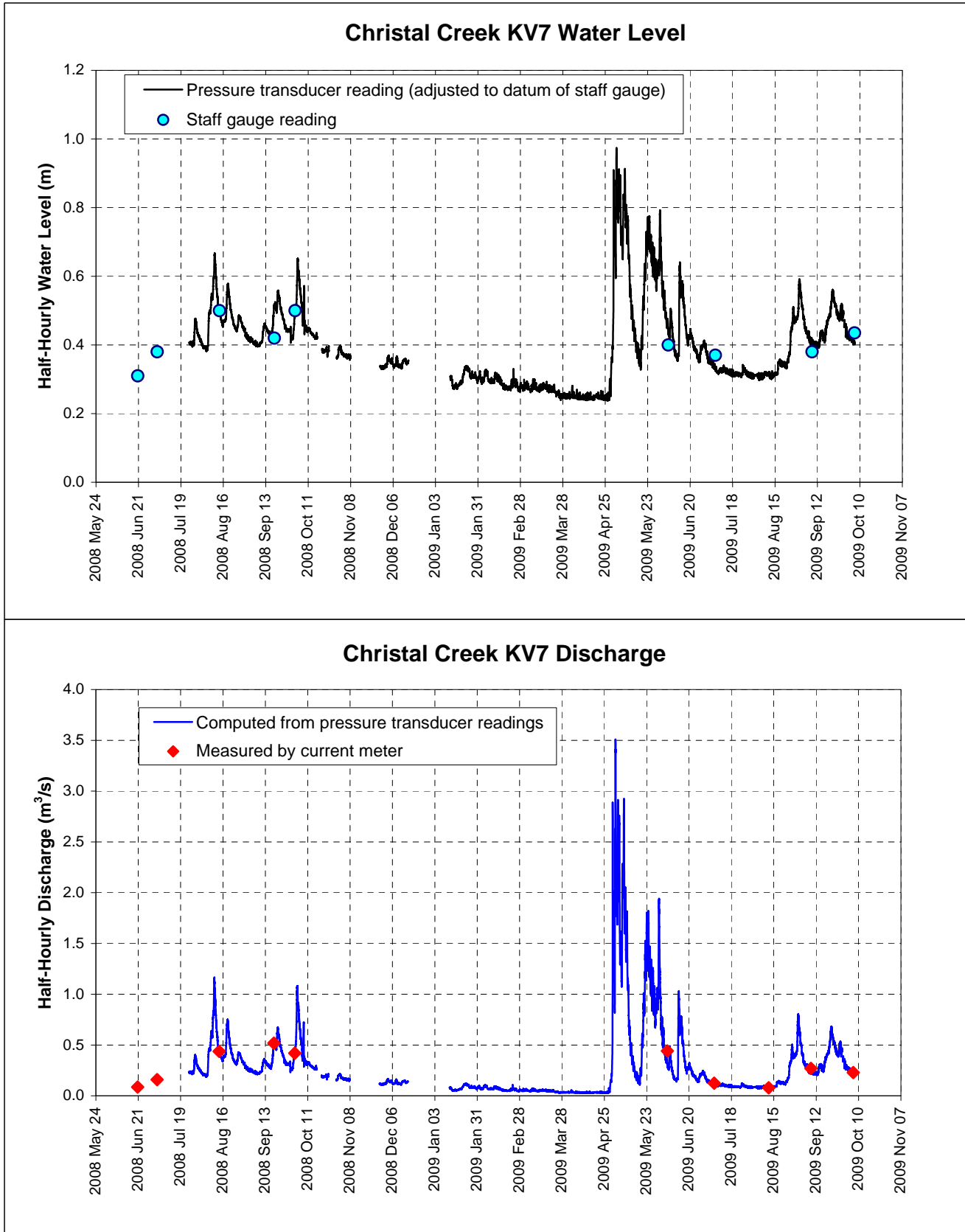


FIGURE 1 - 2008/09 Stage and Flow Records for Station KV7

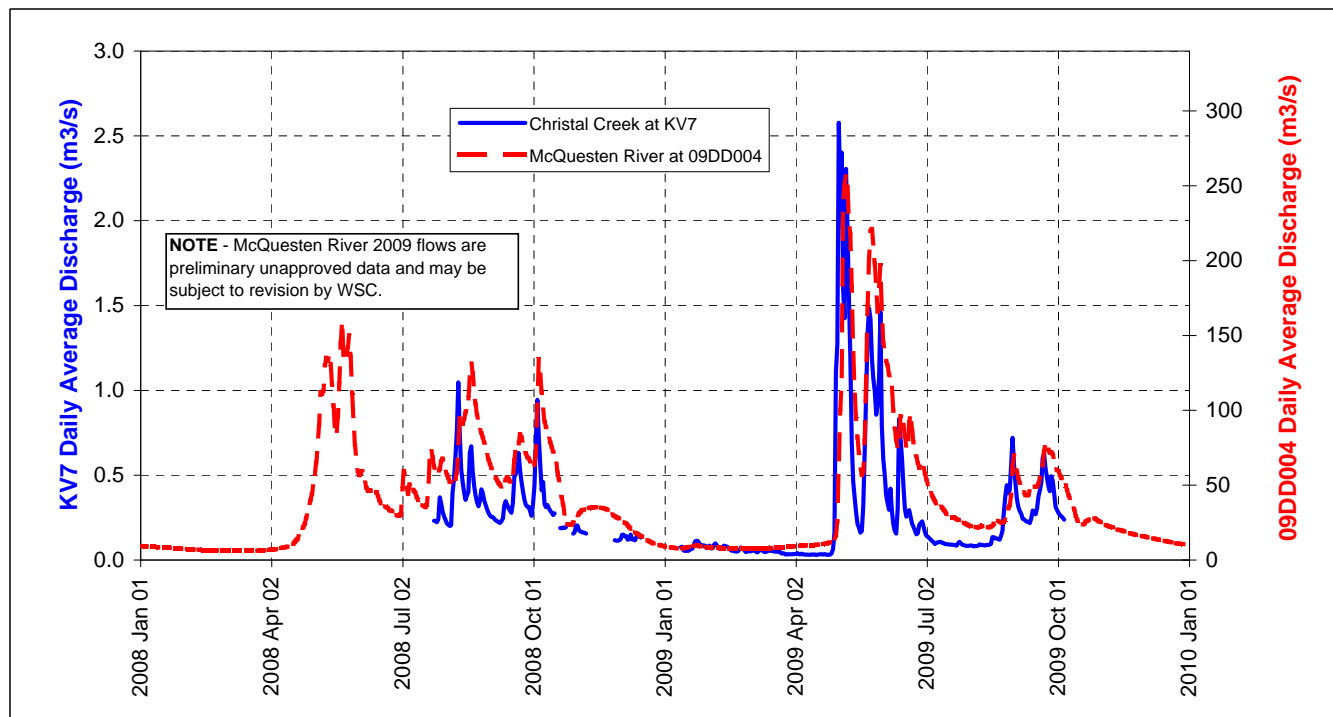


FIGURE 2 - Comparison of Christal Creek at KV7 v. McQuesten River

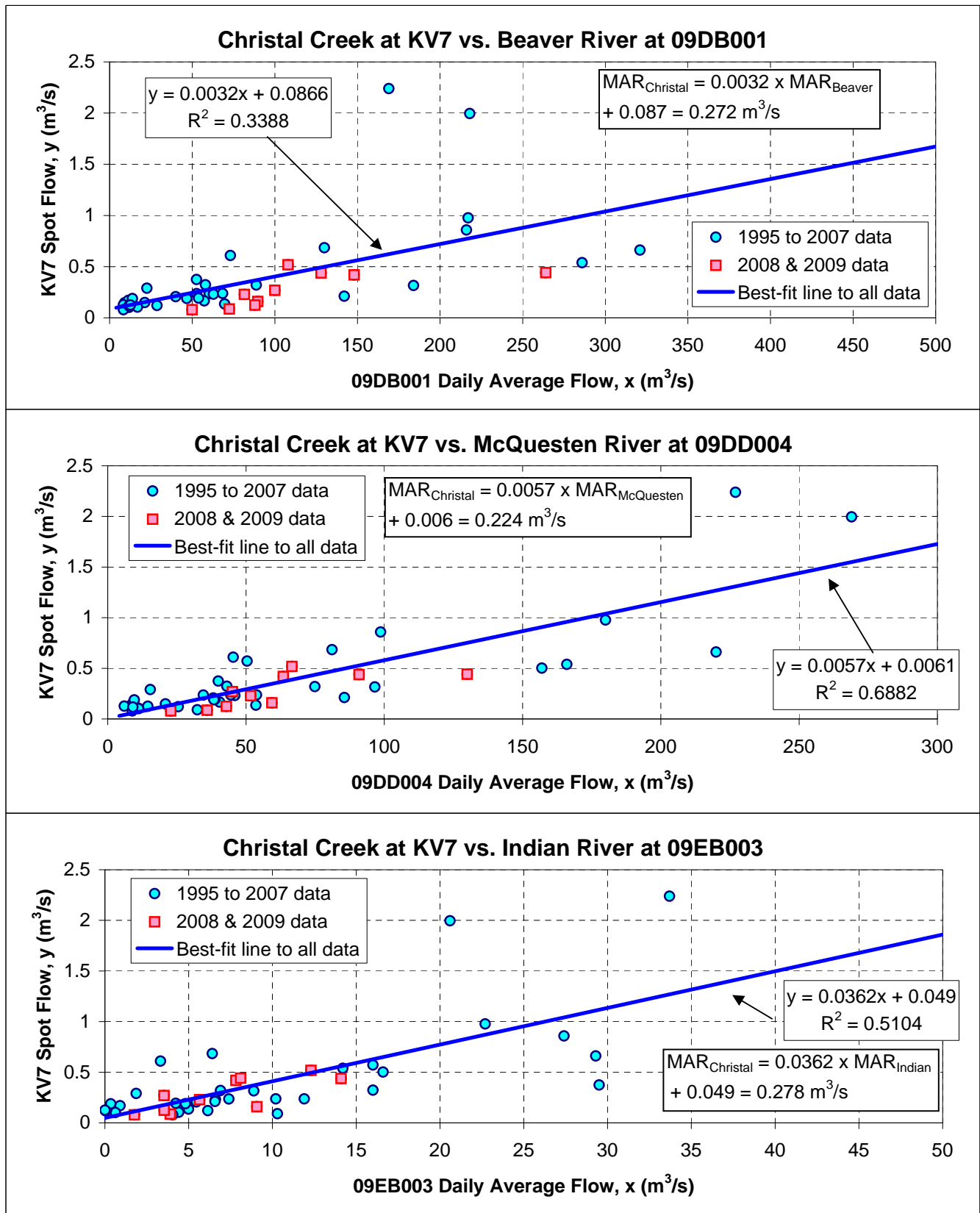


FIGURE 3 - Estimation of MAR of Christal Creek at KV7 from WSC Data

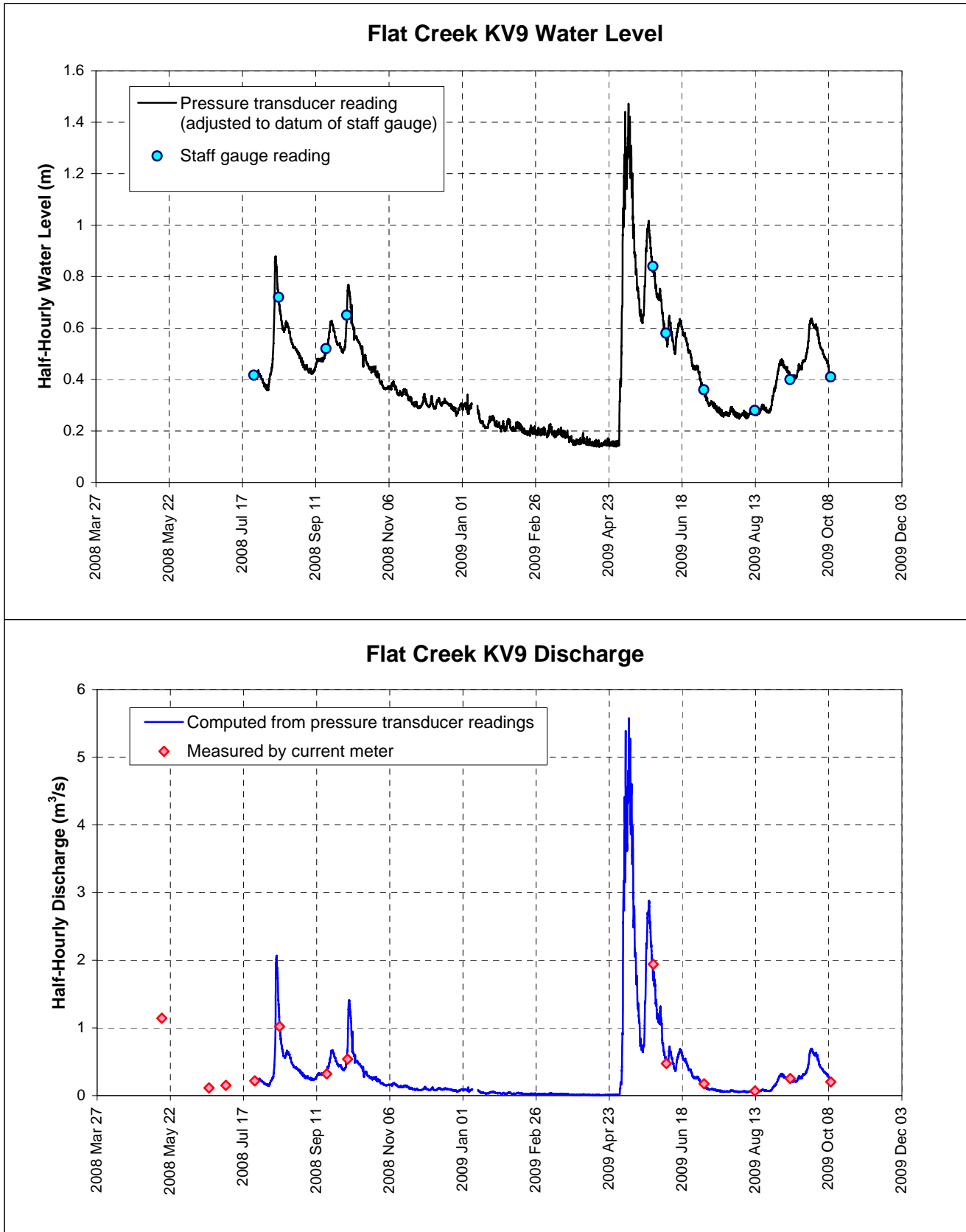


FIGURE 4 - 2008/09 Stage and Flow Records for Station KV9

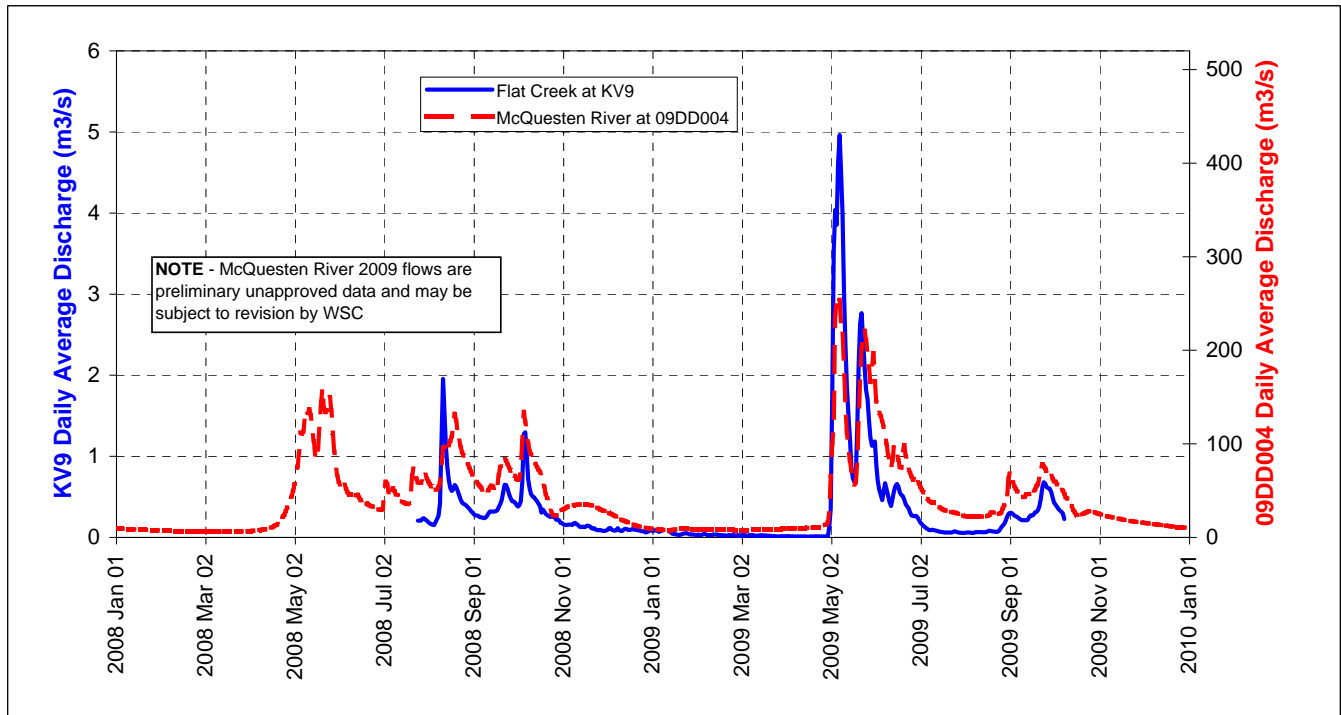


FIGURE 5 - Comparison of Flat Creek at KV9 v. McQuesten River

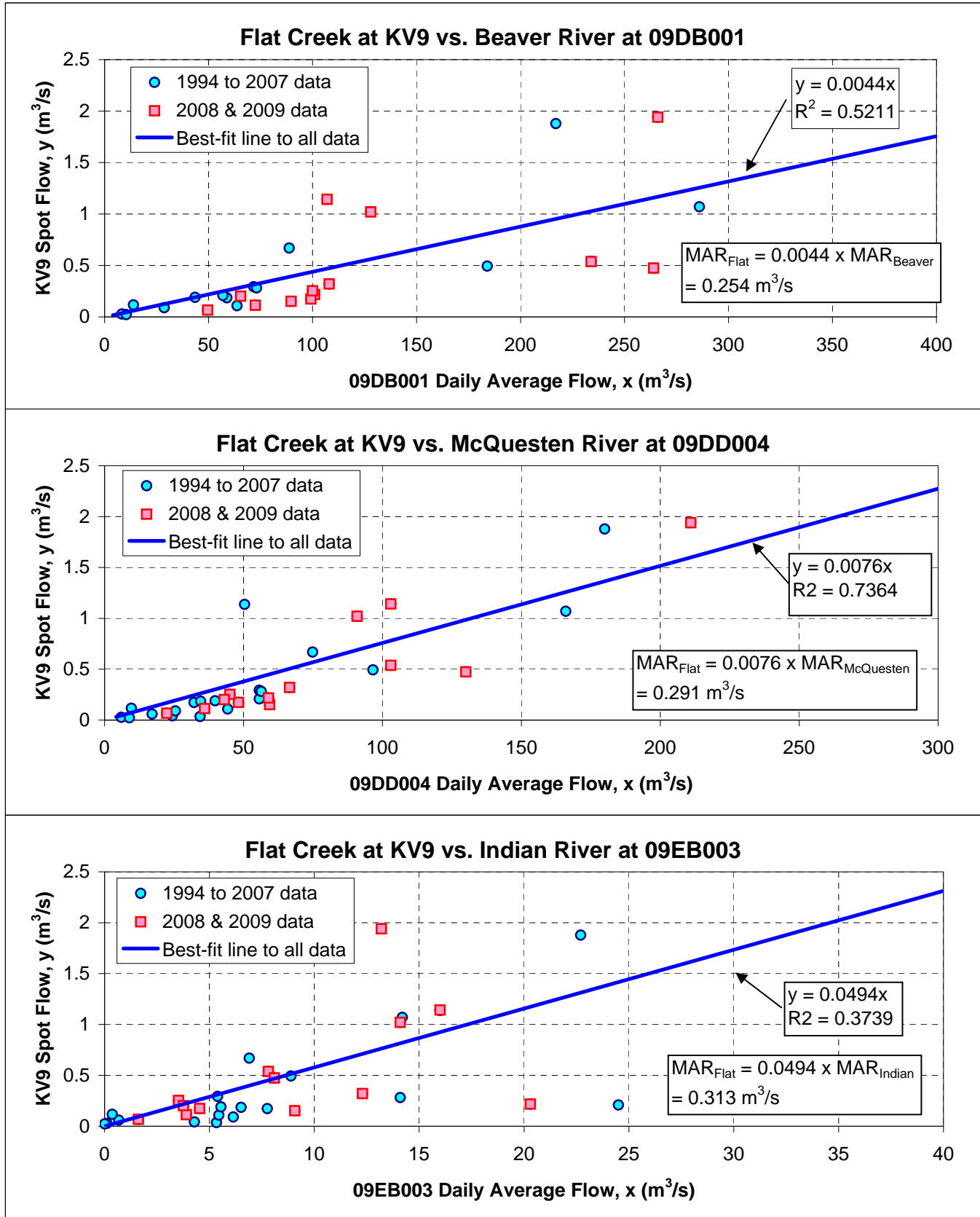


FIGURE 6 - Estimation of MAR of Flat Creek at KV9 from WSC Data

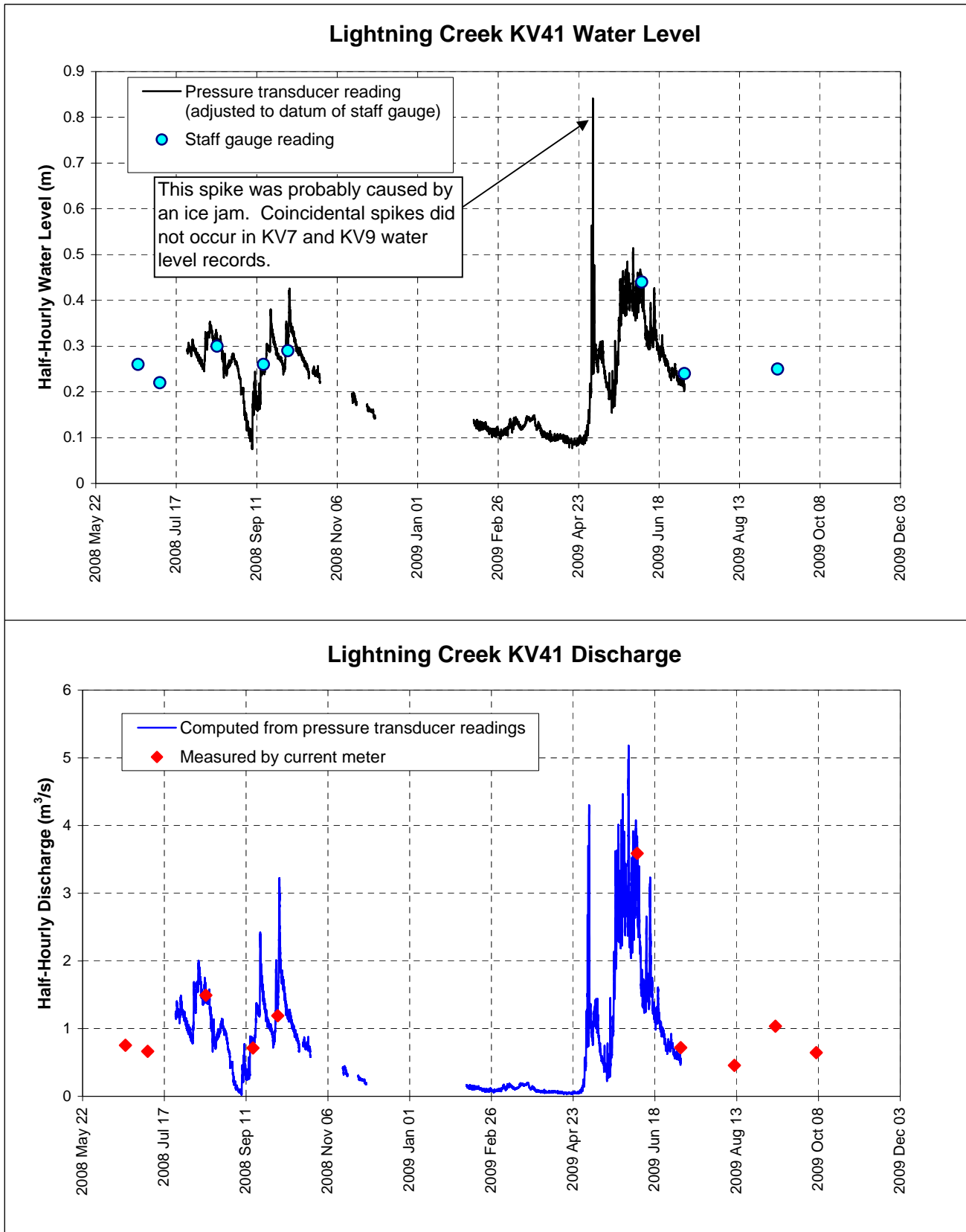


FIGURE 7 - 2008/09 Stage and Flow Records for Station KV41

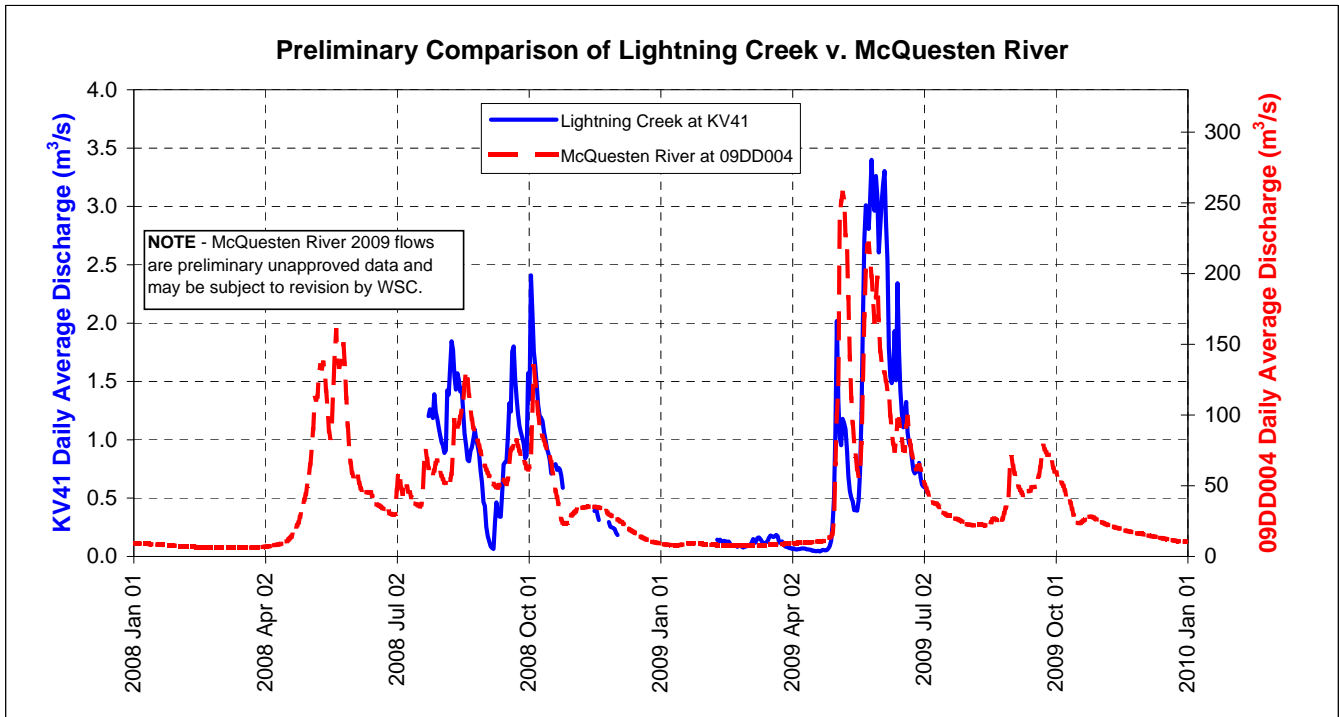


FIGURE 8 - Comparison of Lightning Creek at KV41 v. McQuesten River

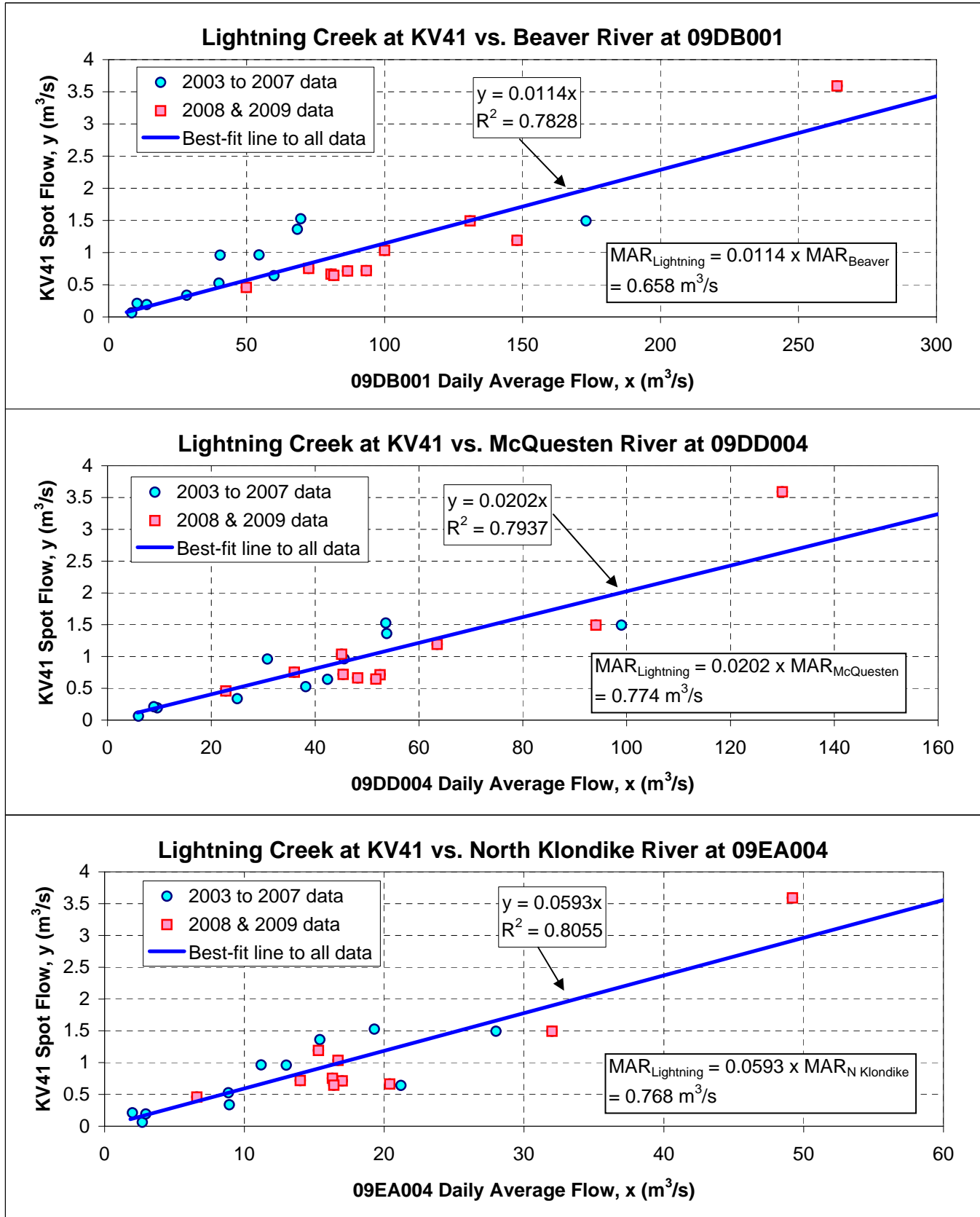


FIGURE 9 - Estimation of MAR of Lightning Creek at KV41 from WSC Data

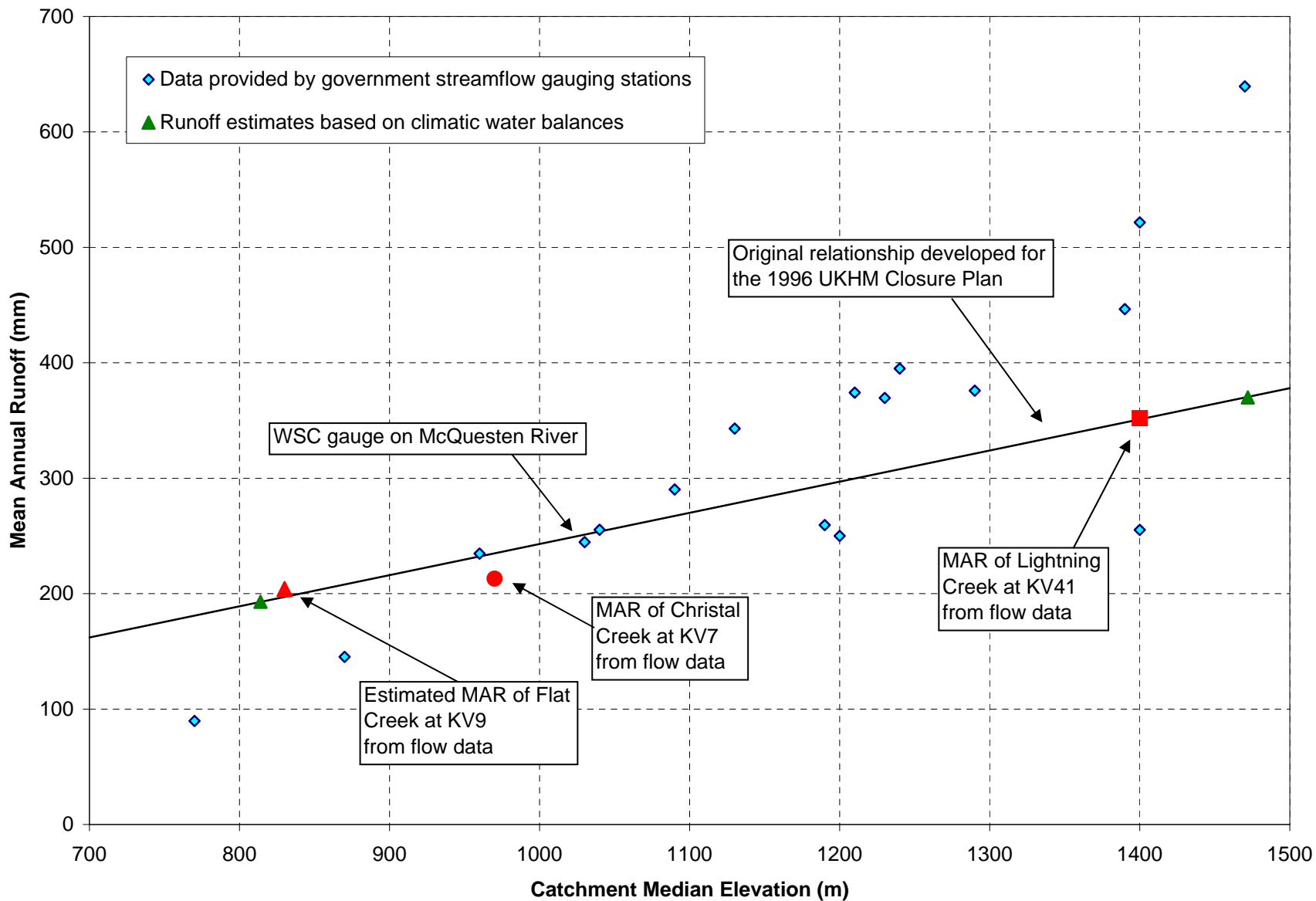


FIGURE 10 - Validation of Regional Relationship Between MAR and Elevation